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BAUSCH & LOMB

Spectronic 20

COLORIMETER

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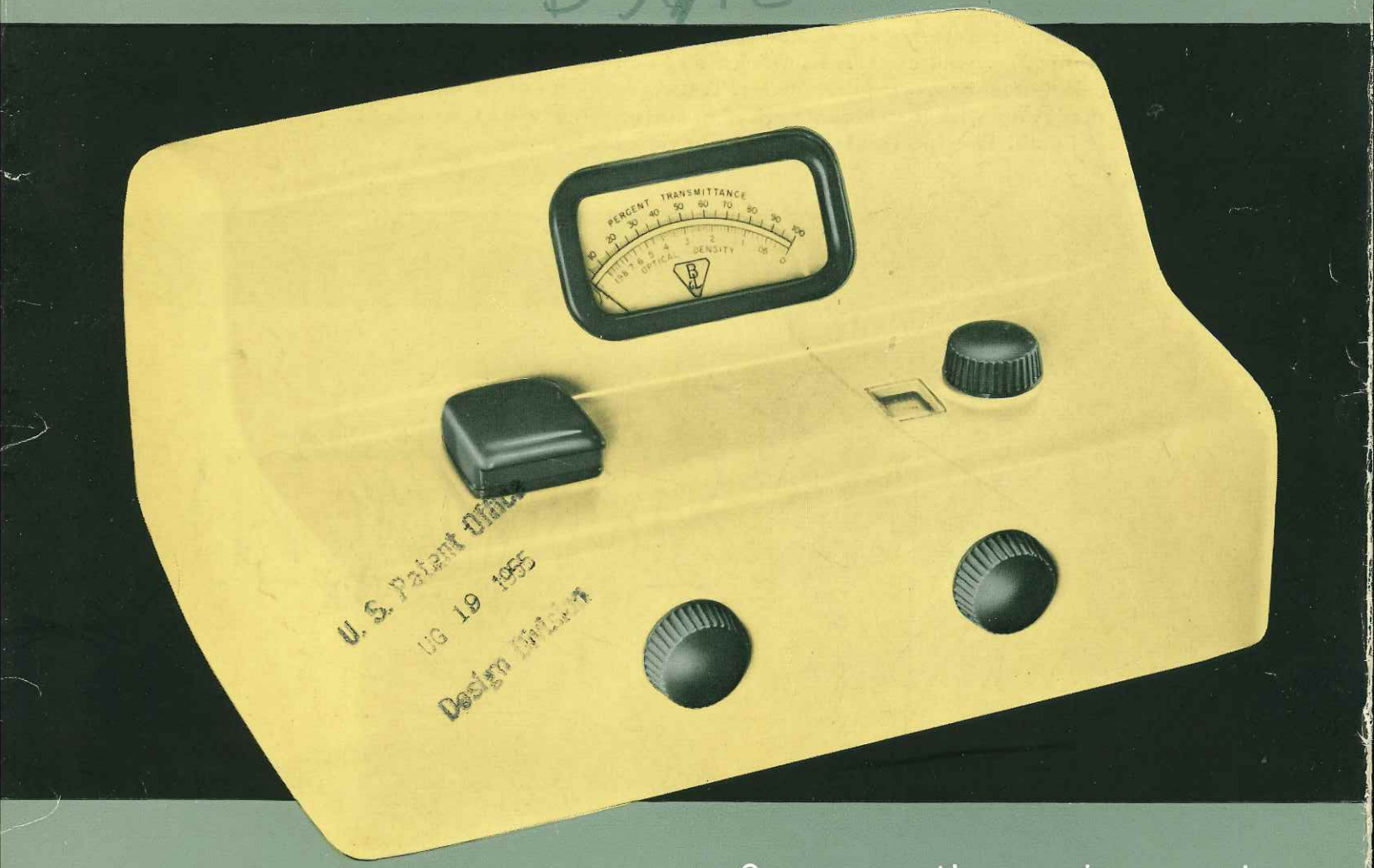

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. . . Saves you time and money in
Colorimetric and Spectrophotometric Work

BAUSCH & LOMB OPTICAL CO. • ROCHESTER, N. Y., U.S.A.

You get two for one

IN THIS NEWEST INSTRUMENT . . .

AND AT ONE LOW PRICE

Both your Colorimetry and Spectrophotometry will be taken care of by this ultra-modern instrument. In clinical and pathological laboratories; industrial and food laboratories; colleges and universities; water and stream pollution control projects; public health and general biochemical laboratories;—wherever photometric studies are made—results of work with the Bausch & Lomb Spectronic 20 are more accurate, quicker and more economical than with any other colorimeter or spectrophotometer. Tests in support of this statement have been made even with instruments priced at two or three times the cost of the Bausch & Lomb. The Spectronic 20 belongs in your laboratory.

Plus

VALUES FOR YOU

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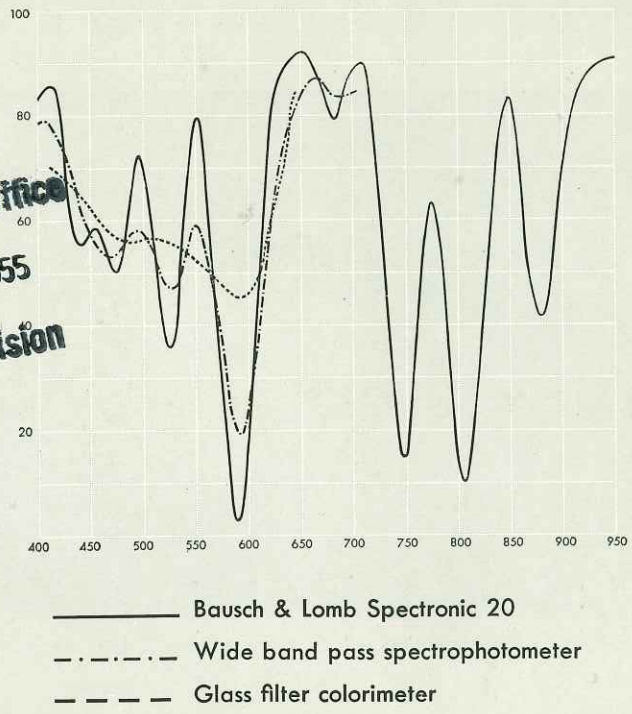
Greatest accuracy assured . . .

as proved in actual tests

This didymium transmission plot shows the extra detail provided by the narrow band pass Spectronic 20, as indicated by the solid line. The _.—.—._ line shows the performance of a more expensive wide band pass spectrophotometer, while that of a glass filter colorimeter of comparable price to the Spectronic 20 is demonstrated by the — — — line.



Save time, bother and work with authoritative methods manual

Clinical users will find the Methods Manual, included with all calibrated Spectronic 20 Colorimeters, a real time and labor saver. This handy collection of 42 most commonly used calibrations has been prepared from data collected by recognized authorities in the field and rewritten especially for the Spectronic 20.

Aside from the reliable material included, every detail of design of the Manual has been given painstaking attention. It is convenient to use and long-lived even in most rigorous laboratory service. By means of the thumb indexes you open the book to the method desired. Spread before you are the procedure to be followed and, below, a table giving the amount of the unknown. There is no turning or twisting and the book lies flat for easy reading.

Easy to keep clean and easy to read, even those pages used the most will last through long, hard service. Long-wearing bristol board is used for the pages and after printing they are sprayed with a special plastic.

The binding is a plastic "comb" with 16 rings equalizing the strain throughout the length of the pages. The pages will never tear out under normal treatment. If supplements are issued they can be easily inserted.

An added convenience is the section on preparation of solutions and reagents for those who prefer to prepare their own. However, all reagents are readily available from established sources such as your laboratory supply dealer or houses that specialize in reagents.

42 Clinical Calibrations in Spectronic 20 Methods Manual

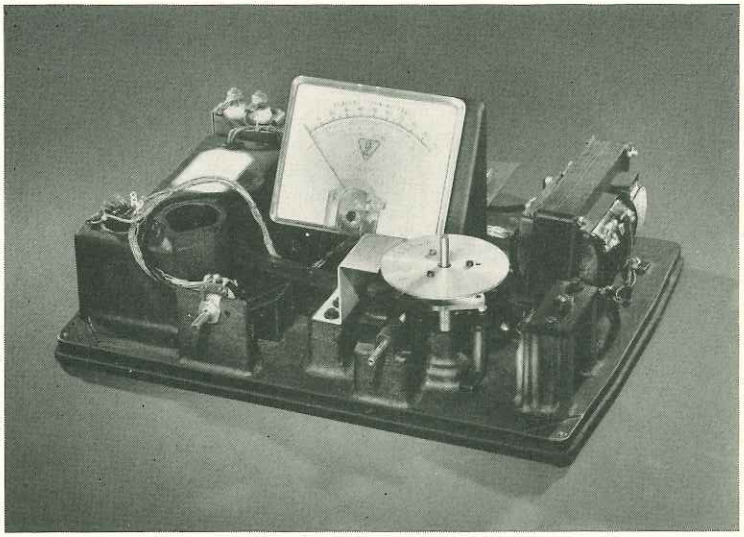
1. Albumin
2. Albumin-Biuret
3. Amylase
4. Amylase-Density
5. Ascorbic Acid
6. Bacteria
7. Bilirubin
8. Bromides
9. Bromosulphalein
10. Calcium*
11. Chloride
12. Cholesterol
13. Creatinine
14. Fibrinogen
15. Fibrinogen-Biuret
16. Gamma Globulin
17. Globulin
18. Globulin-Biuret
19. Albumin/Globulin Ratio
20. Glucose-Somogyi
21. Glucose-Folin Wu
22. Hemoglobin-Acid Hematin
23. Hemoglobin-Oxy-Hemoglobin
24. Icterus Index
25. Iron in Blood
26. Non-Protein Nitrogen
27. Phenolsulfonphthalein
28. Acid Phosphatase*
29. Alkaline Phosphatase*
30. Inorganic Phosphorus*
31. Total Protein
32. Protein-Biuret
33. Sulfadiazine
34. Sulfaguanidine
35. Sulfamerazine
36. Sulfanilimide
37. Sulfapyridine
38. Sulfathiazole
39. Thiocyanates
40. Urea Nitrogen
41. Uric Acid*
42. Urobilinogen

**Requires infra-red sensitive tube and filter, No. 33-29-22*

$225

375-650 mμ
Infra-red phototube and filter
(extend range to 950 mμ) $5.00
with 42 calibrations . . . $240

Complete Package—No Extras to Buy



Front view with cover removed reveals clean, trouble-free design.

It's a pleasure to own and use— and good practice, too

This new Spectronic 20 looks so good . . . works so quickly and accurately—you will be proud to own it and want to show it off every chance you get. It will do both your colorimetry and your spectrophotometry, yet it costs less than most colorimeters alone.

Aside from its low initial cost, the speed and accuracy of this new dual purpose instrument will pay daily dividends. The Spectronic 20 is years ahead in performance and design —and looks it. The appearance of your laboratory will be enhanced by its functional beauty.

Quick and accurate: Every time you use this double value tool you will be impressed by its speed and precision. The Bausch & Lomb Certified-Precision Diffraction Grating, 600 grooves per mm, eliminates filters throughout the 375-650 mμ range, and to 950 mμ with a quick change of phototube and supplementary infra-red transmitting filter. You simply turn the conveniently placed knob and "tune in" monochromatic light of high spectral purity. No adjustment of slit width or sensitivity control is necessary since dispersion of a grating is linear and output constant. The slit is fixed to give a constant narrow band pass of 20 mμ throughout the range of the instrument.

The fixed slit and fixed lamp position eliminate the need for recalibration of the wavelength scale every time the lamp is changed. Stray light at 375 mμ is less than .1% and at the longer wavelengths even less. Strict adherence to spectrophotometric principles is part of the design.

Double the Benefits

In Colorimetry: Quick, easy readings in optical density or percent transmittance are taken direct from the scale. Straighter, steeper plots are obtained, where Beer's law applies, because of the narrow band pass and absence of stray light. Forty-two tests are precalibrated in the Methods Manual, prepared by technicians of wide experience in this field. This manual is included in the purchase price of the calibrated Spectronic 20.

In Spectrophotometry: The Certified-Precision Diffraction Grating pin-points absorption measurements between quickly selected settings of the wavelength selector knob. And, always unhindered by limitations of range and purity of glass filters.

Saves Costly Space

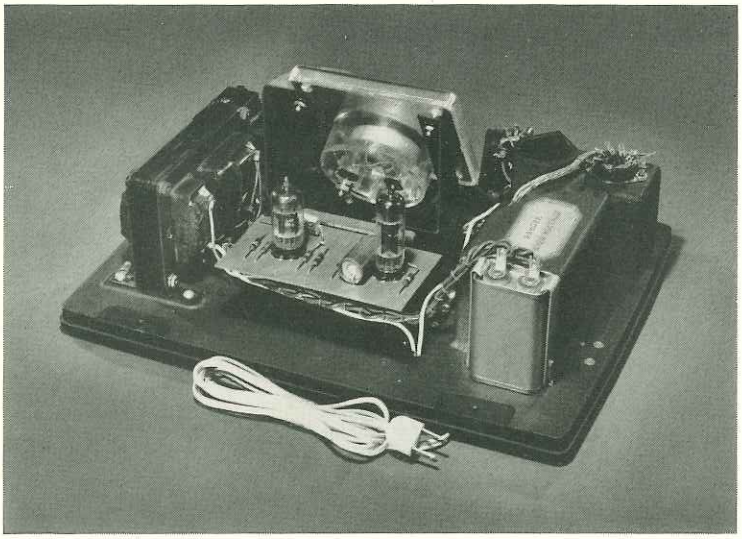
An important consideration in view of the continuing increase in laboratory space costs. Its 14½″ width is less than that of a typewriter. Its 10¾″ depth leaves plenty of working space on the conventional laboratory desk or bench. Even though it does the work of two instruments it occupies only a single space.

Low Maintenance Cost

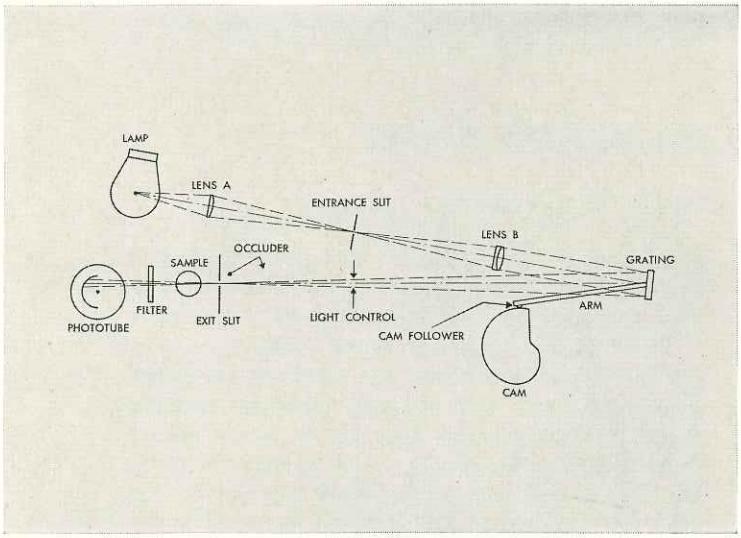
The phototube and microammeter will not be damaged by the hardest laboratory use. Phototubes, unlike barrier-layer photocells are not adversely affected by heat and humidity. All replacements are simply plugged in, no expensive expert technical servicemen are required. One piece die-cast case assures freedom from internal and external contamination. In case of glass container breakage, provision has been made for draining out the liquid through a door in the bottom.

The attractive ivory finish with green trim is acid and reagent resistant. The complete absence of square corners or hard-to-get-at spots encourages thorough cleanliness—the mark of a modern laboratory.

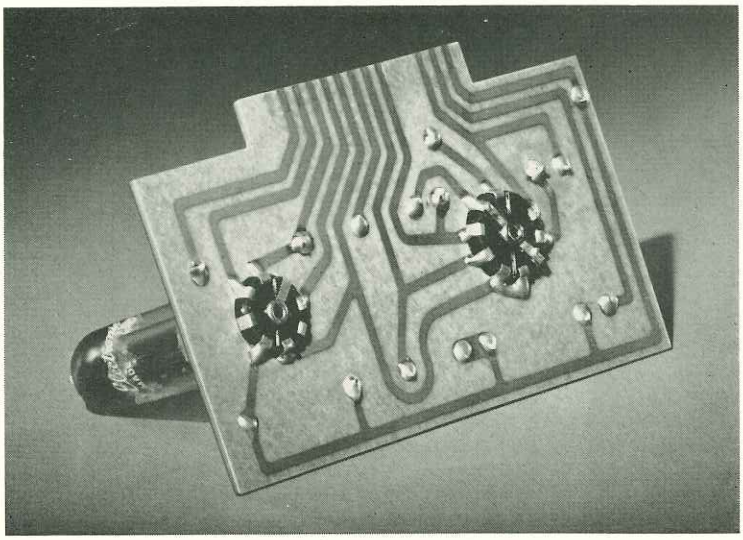
Printed Amplifier Circuit: The most modern and effective electronic design, eliminates wiring and soldering problems, while the *plug-in feature* enables the complete circuit to be replaced as a unit at very nominal cost if ever necessary. *Tubes are standard* and available from local supply sources, without need for special balancing or calibrating.



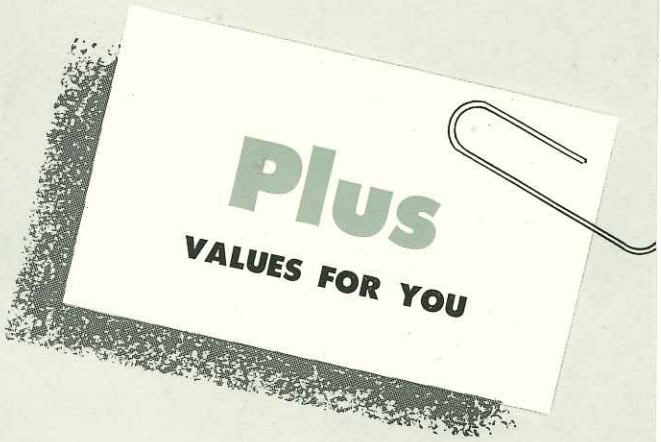
Interior from the rear shows ultra-modern electronic assembly.



Light path from a point directly above the instrument.



The underside of the printed, unitized, amplifier circuit.



SIMPLE OPERATION

No special electrical training or skill is required to operate the Spectronic 20. It is designed for the up-to-date laboratory for use by any technician. There are just three convenient control knobs and readings are made direct from the meter in either optical density or transmission.

For Colorimetry—set 100—insert sample—read.

For Spectrophotometry—dial wave length—set 100—insert sample—read.

Zero setting requires just an occasional check.

WELCOMED EVERYWHERE

Laboratory staffs are happy to have this Spectronic 20 because, besides its overall efficiency, they appreciate its modern, easy-to-clean and maintain design. It will add prestige to any laboratory. Most important, now you can have an accurate, easy to use instrument to give you reliable and repeatable blood or other chemistry determinations.

NO LOST MOTIONS

Automatic shutter closes when sample container is not in light path. Zero point instantly visible. Harmful light cannot strike phototube.

Light Control is fast and easily controlled. Full range sensitivity is completely controlled by one knob.

Built-in Voltage Regulating Transformer maintains constant voltage to the amplifier and lamp. All normal voltage fluctuations, with their consequent harmful effect on precise analysis, are eliminated. The regulator also exhibits low sensitivity to frequency variations. Only when unusual fluctuations, due to overloaded circuits, are encountered, is an in-the-line voltage regulator necessary. For these cases, such an accessory is available at low cost.

EXTREMES IN COLOR DENSITY EASILY RUN

A wide choice of sample holders permits analyzing a variety of samples. Adapters are available for ¾″ and 1″ round, selected test tubes, in addition to the standard ½″ round test tube and the ½″ square cuvette. A cover cap is included to eliminate any possibility of overhead light entering the test tube.

Plus
VALUES FOR YOU

The Spectronic 20 is Heir to a Long Line of Progressively Better Colorimeters

Bausch & Lomb has been the leader in the field of Colorimeter design and its visual type Duboscq design instruments of decades ago are still used in hundreds of laboratories. The Company pioneered in designing and building electrically reading Colorimeters as far back as 1935. Many of these are still in use as research instruments.

Next in the line of progress came the Monochromatic Colorimeters, photo-electric instruments with their very efficient and precise narrow pass band interference filters.

For the past five years the Company's scientists have been producing diffraction gratings of superb quality. These are now being incorporated in B&L Monochromators and Spectrographs, as well as being made available to other instrument designers throughout the world.

You benefit by this wealth of background and experience when you purchase your new Spectronic 20 Colorimeter—Spectrophotometer. This wedding of spectrographic and photometric experience brings you a truly fine instrument for the modern laboratory—and at a price which makes it the world's greatest photometric buy.

SPECIFICATIONS AND PRICES

Catalog Number		Price
33-29-40-01	Spectronic 20 Colorimeter, as described, for 60-cycle, 115-v., A. C., including 3 selected ½" diameter test tubes, ½" test tube and cuvette adapter, methods manual with 42 calibrations, directions for use and plastic dust cover	$240.00
33-29-40-02	Spectronic 20 Colorimeter, as above, but less precalibration manual	225.00
	Accessory or Replacement Items	
33-29-31	Adapter for ¾" test tube	5.00
33-29-30	Adapter for 1" test tube	5.00
33-29-24	Adapter for ½" test tube and cuvette, one included with instrument	6.00
33-29-32	Light shield for use with ¾" and 1" test tube	2.00
33-29-21	Test tube rack to hold six ½" test tubes and six cuvettes	2.50
33-29-22	Infra-red sensitive tube and filter for extending range from 650mmu to 950mmu	5.00
33-33-68	Extra 6-volt lamp	2.03
33-29-10	Constant voltage transformer (for unusual voltage fluctuations)	30.00
33-29-27	Selected ½" test tube: Inside Dimension 11.67mm; length 4"	.70
33-29-33	½" cuvette: Inside Dimension 11.66mm; length 4"	13.00
33-29-37	Selected ¾" test tube: Inside Dimension 16.8mm; length 6".	.85
33-29-34	Selected 1" test tube: Inside Dimension 22.35mm; length 6"	1.00
	For Other Than 60-cycle Operation	
33-29-42-01	Same as 33-29-40-01 but adapted for 115-v., 50 cycles	255.00
33-29-42-02	Same as 33-29-40-02 but adapted for 115-v., 50 cycles	240.00
33-29-11	Constant voltage transformer same as 33-29-10 but for 115-v., 50 cycles	45.00
LT-2	Special transformer to adapt any of above to 220-v., 50- or 60-cycle operation	6.35

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Prices are subject to change without notice. Orders are subject to acceptance at Rochester, New York, U. S. A., at prices prevailing at time of shipment. Orders for standard items may be cancelled if not wanted because of price advance. Excise taxes or other governmental charges will be added wherever applicable. Shipments to points outside Continental United States of America and to its territories, dependencies and possessions, except Hawaii and Alaska, are not subject to excise taxes. Delivery dates are estimated and cannot be guaranteed.

BAUSCH & LOMB OPTICAL CO.
ROCHESTER 2, NEW YORK, U. S. A.

D-266, 20, Mar. '55, C-H

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